

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (original) A system for a dental filling material or an implant material, alternatively a system for bonding between a tooth or a bone and a dental filling material and a implant material, respectively, which system comprises a water based hydration liquid and a powdered material, the binder phase of which powdered material essentially consisting of a calcium based cement system, which powdered material has the capacity following saturation with the liquid reacting with the binder phase to hydrate to a chemically bonded ceramic material, characterised in that said powdered material and/or said hydration liquid comprises water soluble phosphate or a phase that has the capacity to form water soluble phosphate, whereby the system exhibits the capacity during hydration to form apatite.
2. (original) A system according to claim 1, characterised in that the system has the capacity during hydration to form 0.01-30 % by volume apatite in the system.
3. (original) A system according to claim 1, characterised in that the system is a bonding system that has the capacity during hydration to form 0.01-60 % by volume apatite in the system.
4. (currently amended) A system according to ~~any one of the preceding claims~~ claim 1, characterised in that the system has a pH of at least 7, preferably 7-12.5 and even more

preferred 7-11, preferably by use of a buffering system of phosphates or carbonates e.g.

5. (currently amended) A system according to ~~any one of the preceding claims~~ claim 1, characterised in that the binder phase essentially consists of fine grain  $3\text{CaO}\cdot\text{Al}_2\text{O}_3$  and/or  $3\text{CaO}\cdot\text{SiO}_2$  and/or  $2\text{CaO}\cdot\text{SiO}_2$ , preferably having a mean particle size of at most 5  $\mu\text{m}$  and even more preferred at most 1  $\mu\text{m}$ , and in that the hydration liquid comprises phosphoric acid with tricalcium phosphate.

6. (original) A powdered material, the binder phase of which essentially consisting of a calcium based cement system, which powdered material has the capacity following saturation with a liquid reacting with the binder phase to hydrate to a chemically bonded ceramic material, characterised in that the powdered material comprises water soluble phosphate or a phase that has the capacity to form water soluble phosphate, whereby the cement system exhibits the capacity during hydration to form apatite.

7. (original) A powdered material according to claim 6, characterised in that said calcium based cement system is a cement system in the group that consists of aluminates, silicates, phosphates, sulphates and combinations thereof, preferably aluminates.

8. (currently amended) A powdered material according to ~~any one of claims 6-7~~ claim 6, characterised in that said water soluble phosphate is an alkali phosphate.

9. (currently amended) A powdered material according to ~~any one of claims 6-8~~ claim 6, characterised in that it also

comprises grains of a phosphate-containing phase, preferably hydroxy- or fluoride-apatite.

10. (currently amended) A powdered material according to ~~any one of claims 6-9~~ claim 6, characterised in that it also comprises high-molecular proteins, preferably collagen or elastin.

11. (currently amended) A powdered material according to ~~any one of claims 6-10~~ claim 6, characterised in that it also comprises a fluoride-containing phase of non difficultly soluble character, preferably in contents of from 0.5 % and up to 10 %.

12. (currently amended) A powdered material according to ~~any one of claims 6-11~~ claim 6, characterised in that it comprises carbonate or biologically existing ions that has the capacity to form calcite and/or aragonite, oxalates, lactates, citrates.

13. (currently amended) A powdered material according to ~~any one of claims 6-12~~ claim 6, characterised in that phosphate or phosphate-forming phase exists as particles that are precoated by a material comprising phosphate or phosphate-containing phase.

14. (currently amended) A powdered material according to ~~any one of claims 6-12~~ claim 6, characterised in that phosphate or phosphate-forming phase exists by the cement system comprising phosphate-containing phase in solid solution in the cement system.

15. (currently amended) A powdered material according to ~~any one of claims 6-14~~ claim 6, characterised in that the

cement system is a bonding system that has the capacity during hydration to form 0.01-60 % by volume apatite in the system.

16. (original) A powdered material according to claim 7, characterised in that said calcium based cement system is a bonding system that has a larger mole content of calcium than of aluminium, the cement system preferably comprising  $3\text{CaO} \bullet \text{Al}_2\text{O}_3$ .

17. (currently amended) A powdered material according to ~~any one of claims 6-14~~ claim 6, characterised in that the cement system has the capacity during hydration to form 0.01-30 % by volume apatite in the cement system.

18. (currently amended) A powdered material according to ~~any one of claims 6-14 or 17~~ claim 6, characterised in that it exists as a raw compact that preferably exhibits a degree of compaction of at least 55 % by volume solid phase, more preferred at least 60 % by volume solid phase, even more preferred at least 65 % by volume solid phase and most preferred of all at least 70 % by volume solid phase.

19. (original) An aqueous hydration liquid for a powdered material, the binder phase of which essentially consisting of a calcium based cement system, which powdered material has the capacity following saturation with a liquid reacting with the binder phase to hydrate to a chemically bonded ceramic material, characterised in that the hydration liquid comprises water soluble phosphate or a phase that has the capacity to form water soluble phosphate, whereby the cement system exhibits the capacity during hydration to form apatite.

20. (original) A hydration liquid according to claim 19, characterised in that said water soluble phosphate exists

or has the capacity to be formed in an amount of at least 0.01-5 M, preferably 0.1-2 M and even more preferred 0.5-1.5 M.

21. (original) A hydration liquid according to claim 19, characterised in that it is adapted for a bonding system, said water soluble phosphate existing or having the capacity to be formed in an amount of at least 0.01-5 M, preferably 0.5-4 M and even more preferred 1-3 M, suitably close to saturation.

22. (currently amended) A hydration liquid according to ~~any one of claims 19-21~~ claim 19, characterised in that said water soluble phosphate comprises phosphate ions in the group that consists of  $\text{PO}_4^{3-}$ ,  $\text{HPO}_4^{2-}$ ,  $\text{H}_2\text{PO}_4^-$ , hydro-ammonium phosphate and other phosphor-containing ions.

23. (currently amended) A hydration liquid according to ~~any one of claims 19-22~~ claim 19, characterised in that it has a pH of at least 7, preferably 7-12.5 and even more preferred 7-11, preferably by use of a buffering system of phosphates or carbonates e.g.

24. (currently amended) A hydration liquid according to ~~any one of claims 19-23~~ claim 19, characterised in that it comprises suspended or emulsified, non hydrated or partially hydrated calcium aluminate cement, for the formation of a basic environment for the apatite.

25. (currently amended) A hydration liquid according to ~~any one of claims 19-24~~ claim 19, characterised in that it comprises carbonate or biologically existing ions that has the capacity to form calcite and/or aragonite, oxalates, lactates, citrates.

26. (currently amended) A hydration liquid according to ~~any one of claims 19-25~~ claim 19, characterised in that it comprises fluoride ions, preferably at a concentration of 0.01-5 M, even more preferred 0.1-2 M and most preferred 0.5-1 M.

27. (currently amended) A hydration liquid according to ~~any one of claims 19-25~~ claim 19, characterised in that an accelerator and/or a superplasticizer.

28. An implant material comprising a substrate, characterised in that said substrate comprises a hydrated coating layer (2) of a system according to ~~any one of claims 1-5~~ claim 1.

29. (original) An implant material according to claim 28, characterised in that the coating layer (2) exhibits a thickness of 0.5-20  $\mu\text{m}$ , preferably less than 10  $\mu\text{m}$ , and even more preferred 0.5-3  $\mu\text{m}$ .

30. (currently amended) An implant material according to claim 28 [[or 29]], characterised in that the coating layer (2) exhibits an outer layer (3) of a powdered material according to any one of claims 6-18, on top of it.

31. (original) An implant material according to claim 30, characterised in that the outer layer (3) exhibits a thickness of 0.5-10  $\mu\text{m}$ , preferably less than 5  $\mu\text{m}$ , and even more preferred 0.5-3  $\mu\text{m}$ .

32. (currently amended) An implant material according to ~~any one of claims 28-31~~ claim 28, characterised in that a crystal size in the layer (2, 3) is 5  $\mu\text{m}$  at the most,

preferably less than 1  $\mu$ m.

33. (currently amended) A method of achieving bonding between a tooth or a bone and a dental filling material and an implant material, respectively, which dental filling/implant material comprises a chemically bonded ceramic material, characterised in that a bonding system according to ~~any one of claims 1-5~~ claim 1 is used.

34. (currently amended) A method according to claim 33, characterised in that a powdered material ~~according to any one of claims 6-17~~ and/or a hydration liquid ~~according to any one of claims 19-27~~, is used in the bonding system.

35. (currently amended) A method according to ~~any one of claim 33 or 34~~ claim 33, characterised in that the tooth or bone is pre-treated by etching with an etching agent and/or by mechanical coarsening techniques, micro-blasting e.g.

36. (original) A method according to claim 35, characterised in that said etching agent comprises a phosphate-containing etching agent, preferably an etching agent in the group that consists of phosphoric acid, hydrophosphoric acid, phosphate buffer and citrates.

37. (currently amended) A method according to ~~any one of claims 33-36~~ claim 33, characterised in that the bonding system is applied onto the tooth or bone, preferably by painting or spraying, where after said dental filling/implant material is applied outside said bonding system.

38. (original) A method according to claim 37, characterised in that said dental filling/implant material is chosen to be compatible with the bonding system, said

dental filling material/implant material preferably comprising a powdered material, the binder phase of which essentially consisting of a calcium based cement system, which powdered material has the capacity following saturation with a hydration liquid reacting with the binder phase to hydrate to a chemically bonded ceramic material, said powdered material and/or said hydration liquid comprising water soluble phosphate or a phase that has the capacity to form water soluble phosphate, whereby the dental filling material/implant material exhibits the capacity during hydration to form apatite.